

NATURE'S WARDENS

Luke Airmen set the standard for environmental programs

Christopher Reimer holds up what used to be 5 gallons of paint thinner. But with the use of a Safety Kleen paint gun and equipment cleaner, the thinner is reduced into a pound of rubbery residue. The residue is called volatile organic waste compound.



by Staff Sgt. Matthew Rosine, photos by Tech. Sgt. Cecilio M. Ricardo Jr.



Jeff Scone, chief of environmental quality (above), sorts items for recycling at Luke Air Force Base, Ariz. The base used to send 60 tons of oil filters, fuel filters, diesel, hydraulic fluid and JP8 fuel to the landfill. Now nothing goes to the landfill. Erik Stenehjelm (right) conducts a routine pronghorn clearance procedure to ensure no antelope are on the live-fire range. If any are found, use of the range is restricted for the day. Mr. Stenehjelm is the lead wildlife biologist at the Gila Bend Air Force Auxiliary Field.



At first glance, it's an office like any other. It's the first door on the left past the men's room. An old weathered universal waste sign is magnetized to the top of its door frame.

But like many things, what makes this office special is what's on the inside.

It's the office of Jeff Schone, chief of environmental quality at Luke Air Force Base, Ariz. Amid the stacks of papers, reports and sticky notes double parked across his desk and computer; it has boxes of recyclables, environmental marketing promotional items and educational tools stacked to the bottom of his Periodic Table of Elements and Arizona Sport Fish posters.

This office is also special because it's the home of the base's environmental quality program — a program that's making a big difference.

"We have one of the most comprehensive environmental programs here on our base because everything we deal with is really critical — from our water conservation to our air quality management — because we are in a non-attainment area," Mr. Schone said. "This means that we have very strict rules and air quality guidelines we have to adhere to."

It's a challenge that's no small obstacle to overcome. According to the base officials, if Luke was to "create its own country" it would have the fifth largest air force in the world.

Education and Innovation

Education is one of the program's top priorities. In the past, the environmental education and awareness programs weren't successful. In fact, their recycling efforts began to drop off. While good programs were in place, many Airmen didn't seem to really care about the programs. So the unorthodox idea of marketing the environment was born with the Thunderbolt Recycling program.

The staff created a program for base "recycling captains" and the Luke Environmental Excellence Program, with links on the base's Web site. They also established a base-specific environmental training program online, educating 6,400 people in two months.

While environmental education was in full swing, they got to work recruiting volunteers and re-evaluating programs, looking for innovative technologies on base and in the local community.

By partnering with Phoenix area companies, the base has been able to recycle almost anything, such as alkaline batteries, paper, wooden pallets, cell phones and inkjet printer cartridges. These community partnerships not only improved the recycling program, they save money and improve the current state of business at the base.

The base has also improved its innovations internally by using bio-diesel fuel, expanding the use of golf carts across the base and installing solar panel lighting on the roof of the base exchange.

Another such innovation is the good stewardship recyclables bag. These bags were created by the environmental office and handed out door-to-door in base housing. It's mesh on both sides, machine-washable and designed to hang from doorknobs or wall hooks to help make recycling easier, and has a list of recyclable items printed on them. They worked so well that they began to distribute them to local communities.

"We want the community to know that we are a good thing to have around Phoenix," Mr. Schone said. "We're doing things in the community, with the community and for the community, and they in turn do so much for us."

To continue their programs' growth, the staff purchased a baler for aluminum can recycling. Glass recycling is scheduled to begin next spring and plans are under way to recycle food oils from the dining halls, clubs and base housing. Luke is also constructing a "green building" — built with environmentally friendly materials such as non-hazardous paint and recycled carpets.

The Rewards

With all its efforts, the base has received abundant praise — from the 2005 White House Closing the Circle award to the trust and appreciation of the local community.

"(The base's) partnership is worth so much to our organization," said Terry Gellenbeck, Solid Waste Administration Analyst with the

Across the Air Force

While the environmental achievements at Luke are impressive, they're one of many bases making dramatic environmental strides and innovations that are making the force more "green."

Dyess Air Force Base, Texas, and Fairchild AFB, Wash., are both 100 percent powered by reusable energy. In fact when Dyess became 100 percent green in 2003, it became the largest single purchaser of green power — wind energy — in the entire United States edging out the city of Chicago. The Air Force even owns and generates its own renewable energy from two wind farms on Ascension Island and F.E. Warren AFB, Wyo.

Edwards AFB, Calif., Minot AFB, N.D., Ellsworth AFB, S.D., Cannon AFB, N.M., Goodfellow AFB, Texas, and Sheppard AFB, Texas, all contribute to the Air Force's annual purchase of 1,066,397 Megawatt Hours of renewable electricity — making the Air Force the largest purchaser of renewable energy in the United States by more than double. The Whole Foods Market Corporation is the number two

consumer in the nation with just over 450,000 megawatt hours.

Hill AFB, Utah, is helping the Air Force lead the way in Biomass energy usage. The base will be using landfill gas to generate electricity. This is a \$17 million energy cost savings over the next 20 years or 8,584,800 kilowatt hours annual production — enough to replace the electricity consumed by 850 homes.

Geothermal energy is being used by Offutt AFB, Neb., and Charleston AFB, S.C. Offutt installed geothermal units that service three dormitories and provide an estimated 21 percent energy savings over brand new boiler/chiller systems. Last year, Charleston finalized a geothermal heat pump initiative that should save an estimated \$2 million in savings for annual electric, water and energy costs over the 19-year contract.

At Nellis AFB, Nev., an 18 Megawatt solar array is being installed on 140 acres provided by the Air Force.

And outside of being unique programs on their own, all the bases' efforts combine to make today's and tomorrow's Air Force leaner, meaner and "greener."

— Staff Sgt. Matthew Rosine



Staff Sgt. Milo Munoz educates children on recycling at the Palm Valley Elementary School in Phoenix, Ariz. Sergeant Munoz, a crew chief from the

City of Phoenix and the city's official representative for the Valleywide Recycling Partnership. "The outgoing, energetic people that volunteer from the base bring so much excitement and motivation with them that they are worth a lot more than any amount of money they donate. To me, that shows just how vital they are to this community and what a vital part of the solution they are."

In more practical terms the base has eliminated 12 hazardous waste streams, saving more than \$77,000, and reduced others by more than 99.9 percent.

Use of the base's electric cars has reduced more than 600,000 miles of driving pollution. Base officials eliminated 48 tons of base pollutants, capture 99.99 percent of toxic mercury particles from the new dental recovery system, reclaimed 100 percent of aerospace ground equipment's petroleum, oil and lubricants, saving more than

308th Aircraft Maintenance Unit, works the night shift but always finds time to help promote environmental programs to the community.

\$350,000 in control costs and performed 29 asbestos abatements for 28 buildings.

And with a small annual budget, the best part is that the environmental office is making lots of green — money going back to Airmen. Aside from saving the base hundreds of thousand of dollars every year, the office is making more than \$350,000 annually. While a small portion goes back into paying for future projects and activities, most of the money gets funneled back into quality of life programs on base.

"The key to our success has been thinking outside the box," Mr. Schone said. "Looking at it as not just something to fix the problem or to stay in compliance or to get into compliance is looking at it from a holistic perspective of sustainability for the future, but also looking to always improve, seeing what we can improve to ultimately enhance the mission." 🦋



Staff Sgt. Milo Munoz drops off recyclable papers to illustrate the proper use of their new specially-crafted recycle bags on the Palm Valley Elementary school yard in Phoenix, Ariz.

Alternative Energy

Energy conservation and efficiency go a long way in preserving our planet's rich natural resources and promoting a healthy environment, and the Air Force is no stranger to these efforts. In fact, the Air Force is the largest purchaser of renewable power in the United States, representing over 41 percent of the Federal governments' total purchases of renewable power.

Individually, we can all assist in these efforts by doing a little extra at home or tweaking our daily routines, here are some tips:

- Choose a utility company focused on renewable energy.
- In hot climates, use window tints, blinds and trees to help keep out heat from the sun.
- Paint your home a lighter color if you live in a hot climate, or a darker color in a cold climate. The colors will impact that amount of heat that is absorbed in your structure.
- Insulate your hot water heater as well as hot water pipes located in unheated areas.
- Reduce your "standby" power by unplugging appliances not in daily use.
- Keep the lights off during the day and use daylight.
- When using faucets, use cold water as often as possible.
- Carpool as often as possible.
- Seal exterior doors to reduce heat/cooling loss.
- Replace incandescent bulbs with compact fluorescents. These can last up to 10 times as long as old-fashioned bulbs, and produce less heat while using only a quarter of the electricity.

Why recycle?

Not sold on recycling? Check out these facts about the effects

of recycling on the environment:

- Recycling one soda can saves enough energy to light a 100-watt light bulb for 24 hours or operate a television for three hours.
- Recycling one ton of paper saves 17 trees, two barrels of crude oil (enough to run the average car for 1,260 miles), 4,100 kilowatts of energy (enough to power the average home for six months), 3.2 cubic yards of landfill space, and 60 pounds of air pollution.
- Recycling creates six times as many jobs as landfiling.
- Recycling glass instead of making it from silica sand reduces mining waste by 70 percent, water use by 50 percent and air pollution by 20 percent.
- If we recycled all of the newspapers printed in the United States on a typical Sunday, we would save 550,000 trees — or about 26 million trees per year.
- The energy saved each year by steel recycling is equal to the electrical power used by 18 million homes each year — or enough energy to last Los Angeles residents for eight years.
- If every household in the United States replaced just one roll of bathroom tissue with recycled tissue, we could save 373,000 trees, 1.48 million cubic feet of landfill space and 155 million gallons of water.
- The United States is 5 percent of the world's population but uses 25 percent of its natural resources.
- Americans throw away enough aluminum to rebuild our entire commercial fleet of airplanes every three months.
- About 80 percent of what we throw away is recyclable, yet our recycling rate is only 28 percent.